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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,010	10/09/2003	Jeffrey Matthew Kempf	TI-35626	7738

23494 7590 05/25/2006

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EXAMINER

NGUYEN, KEVIN M

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/682,010

Applicant(s)

KEMPF, JEFFREY MATTHEW

Examiner

Kevin M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/09/2003</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 6,522,356) in view of Matama (US 5,905,817).

3. As to claim 1, Watanabe teaches circuitry [100, Fig. 7] for converting digital data representing an image for displaying on an orthogonal pixel array [square pixels arrange in horizontal and vertical direction, Fig. 8] to digital data suitable for displaying said image [an image apparatus 300, Fig. 7] on a diamond-shaped pixel array [Fig. 1C] comprising:

a source [9, Fig. 7] for providing a stream of digital data signals representing said image for display on said orthogonal pixel array;

a linear-phaseⁱ Filterⁱⁱ [a linear-phase filter 100, Fig. 8] having an input for receiving said stream of digital data signals and for providing a filtered data stream [it is noted that Fig. 2 describes a linear phase is a property of a filter, where the phase response of the filter is a linear function of frequency f_H and f_V , excluding the possibility of wraps at $\pm\pi$. Perfect linear phase is equivalent to a symmetrical impulse response, see col. 6, lines 33-39, and col. 8, lines 2-43]; and

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circuitry for sub-sampling said filtered data for use on a diamond-shaped array by dropping data to be displayed for even pixels on all odd numbered orthogonal rows and dropping data intended for display for odd pixels on all even numbered rows [see Fig. 1C, col. 6, lines 40-43].

Accordingly, Watanabe teaches all of the claimed limitation, except for a Linear-phase IIR Filter.

However, Matama teaches a filtering process on an image signal with a Linear-phaseⁱ [see Figs. 3A-3D] IIR filterⁱⁱ [see Fig. 1 and 6, col. 6, lines 23-30, and col. 12, lines 25-65].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the color filter as taught by Watanabe to become the Linear-phase IIR Filter as taught by Matama, because this would improve a good quality of the image being displayed (Matama, col. 9, lines 28-36).

4. Claims 2-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Matama as applied to claim 1 above, and further in view of Bradley et al (US 6,928,196) hereinafter Bradley.

5. As to claim 2, the combination of Watanabe and Matama teaches all of the claimed limitation, except for detection circuit for receiving said filtered data and for detecting a vertical edge in said image.

However, Bradley teaches edge detection modules (1209 to 1225) for calculating the vertical edge in the image [see Fig. 12 and 18, col. 18, lines 1-14, and col. 24, line 63 through col. 25, lines 47].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the edge detection modules for the intended use in the combination of Watanabe and Matama, because this would prevent colored ringing, or color bleeding, around sharp edges of one primary color (see Bradley, col. 15, lines 13-30, col. 16, lines 26-31, col. 17, lines 28-35, and col. 18, lines 45-50).

6. As to claim 3, the combination of Watanabe and Matama further teaches the circuitry of claim 1 wherein said Linear-Phase IIR Filter [18, see Matama, Fig. 1] includes a plurality of stages and further comprising an output connection for providing a partial filtered output data stream [see Matama, Fig. 6];

the combination of Watanabe and Matama and Bradley further teaches Ringing Minimization circuit [maximum/minimum finder circuit, see Bradley, Fig. 24] for receiving said partially filtered output data stream and for providing a ringing minimization signal; and

limiter circuit [comparison circuits 2407, 2413, and a multiplexer 2409, see Bradley, Fig. 24] for coupling said ringing minimization signal and said filtered data stream to generate a filtered data stream with reduced ringing [see Bradley, col. 30, lines 47 through col. 31-32, line 15].

7. As to claim 4, Bradley further teaches the circuitry of claim 2 further comprising switching circuitry for receiving said sub-sampled filtered data and first and second high frequency filters, switching circuitry providing said sub-sampled filtered data to said first high frequency filter when a vertical edge is detected and to said second high frequency filter when a vertical edge is not detected [see col. 25, lines 1-36].

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8. As to claim 5, Bradley further teaches the circuitry of claim 4 wherein said first filter is applied across three line-interleaved pixels when selected and said second filter is applied across three horizontally adjacent pixels when selected [see col. 25, lines 1-18].

9. As to claim 6, Bradley further teaches the circuitry of claim 5 further including circuitry for providing a selected gain of data from said first and second filters [see Fig. 25].

10. The limitations of a method of claim 7 associates with the limitations of the apparatus of claim 1 and therefore the rationale of rejection will be the same.

11. The limitations of a method of claim 8 associates with the limitations of the apparatus of claim 2 and therefore the rationale of rejection will be the same.

12. The limitations of a method of claim 9 associates with the limitations of the apparatus of claim 3 and therefore the rationale of rejection will be the same.

13. The limitations of a method of claim 10 associates with the limitations of the apparatus of claim 4 and therefore the rationale of rejection will be the same.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. NGUYEN whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, a supervisor RICHARD A. HJERPE can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kevin M. Nguyen
Patent Examiner
Art Unit 2629

KMN
May 19, 2006

ⁱ See http://en.wikipedia.org/wiki/Linear_phase

ⁱⁱ See http://en.wikipedia.org/wiki/Infinite_impulse_response